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information on courses & workshops

1981-82

training & certification

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Ontario
Ministry of the Environment

The Honourable
Harry C. Parrott, D.D.S.,
Minister

Graham W. S. Scott, Q.C.,
Deputy Minister

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Ontario

Ministry
of the
Environment

135 St. Clair Avenue West
Suite 100
Toronto, Ontario
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Tel. (416) 965-1027

March 15, 1981

Dear Sir:

Herewith a copy of the publication describing the 1981/82 courses and workshops offered by the Training and Certification Section, Ontario Ministry of the Environment. A brief description of each course and workshop is presented. The capacity and location of each course is outlined in Appendix 27.

Please note the application procedures on pages 4 and 5, and the information required to be submitted with each application. It is important that the name of the candidate be submitted as early as possible as vacancies are limited and quickly filled.

Please circulate this publication to others in your organization who have a responsibility for staff training and development. Comments on scheduled courses or suggestions for new ones are welcome.

Yours truly

R.R. Doddridge, P.Eng
Manager
Training & Certification Section
Personnel Services Branch

Ministry of the Environment

Technical Training Program

1981 - 1982

Preface

The responsibilities of the Training and Certification Section, Ontario Ministry of the Environment, include the development and conduct of training and certification programs for personnel engaged in the protection and upgrading of the natural environment. By working in close co-operation with professional, industrial and government organizations, programs are designed to meet the needs of Ministry and non-Ministry staff. As additional requirements are identified, new programs will be developed.

If recipients of this bulletin know of others in their localities who might be interested in the Ministry training program please encourage them to request a copy of the bulletin from the:

Publication Centre
Ministry of Government Services
880 Bay Street
Toronto, Ontario M7A 1N8

Information not included in the brochure may be obtained from:

Registration Secretary
Training and Certification Section
Personnel Services Branch
135 St. Clair Avenue West
Toronto, Ontario M4V 1P5

Training Philosophy

1. In general, programs employ the Behavioural Objective Approach to Training (BOAT). A training manual, prepared for each course or workshop, as a reference text, provides information on the topics and lists objectives which tell the trainee what he must know and do to successfully complete the course. At the same time it reminds the instructor what he must teach, describe or demonstrate so that the performance of the trainee meets the required standards. To verify successful completion, both practical (hands-on) and written tests are administered to the trainees.

2. Instructors are obtained from many sources and have usually been involved in developing material for the courses and workshops. As part of their normal work they are usually also responsible for providing advice, guidance and practical assistance to the operational staff, so they understand the day-to-day problems faced in the field. Based on this knowledge and background, the instructor can deal with any relevant questions raised during the course or workshop. Furthermore, he is identified to the trainee as a point of contact for advice on problems which might arise.

Scope of Program

3. Courses and workshops are offered annually, with most being scheduled between September and May. A course consists of lecture and discussion periods interspersed with audio-visual presentations and other demonstrations. A workshop is a course which includes substantial "hands-on" participation, during which the trainee receives practical training and errors are corrected as they occur.

4. Training programs offered by this Ministry and desribed in the attached Appendices are listed below:

Appendix

1. Monitoring Water/Wastewater Treatment Operations
2. Basic Sewage Treatment Operation Course
3. Activated Sludge Workshop
4. Primary Treatment and Digestion Workshop
5. Basic Water Treatment Operation Course
6. Surface Water Treatment Workshop
7. Basic Gas Chlorination Workshop
8. Pump Operation Workshop
9. Preventive Maintenance Workshop
10. Digester Gas System Maintenance Workshop
11. OP/Maintenance of Water Distribution Systems
12. OP/Maintenance of Wastewater Collection Systems
13. Laboratory Skills for Plant Operators
14. Advanced Water and Wastewater Treatment
15. Sewer and Watermain Design Course
16. MEA/MOE Inspectors Course No. 1
17. MEA/MOE Inspectors Course No. 2
18. Industrial Abatement-Air Management
19. Visible Emissions Identification Certificate Course
20. Control of Liquid Industrial Waste
21. Waste Disposal by Landfilling
22. Groundwater for Environmental Officers
23. Emergency Response
24. Environmental Investigations
25. Aids to Investigators
26. Acoustics Technology

5. The program schedule is at Appendix 27 and a course calendar is at Appendix 28.

6. **Prerequisites**

(a) Prerequisites are specified for some courses. Employers must ensure that course candidates meet these requirements. If an application is received for a candidate lacking the course prerequisites, it will not be accepted.

(b) Certain advance courses require the Ministry Basic Water or Sewage Course or equivalent as a prerequisite. Equivalents to the Ministry Basic Courses include the courses previously offered by the OWRC.

(c) Certain courses, because of prerequisities and/or course design, are restricted to specific groups. Courses annotated "MOE only" are available to Ministry staff other than plant operators;

"Operators only" restricts these courses to water and waste-water treatment plant employees' either Ministry or non-Ministry. If no restriction is shown, anyone with the proper prerequisites may make application. See Appendix 27.

7. Course Capacity

The capacity of each course, workshop and seminar is shown on Appendix 27, Program Schedule. If a course is over-subscribed, selection of candidates will be based on date of receipt of application.

Application Procedures

8. An application must be submitted by letter to the Registration Secretary Training and Certification Section:

(a) For a Ministry employee, by a Regional Director, a Regional Manager, a Branch Director or Supervisor.

(b) For a non-Ministry employee, by the individual's employer.

9. The following information must be included:

(a) Course and date. An acceptable alternate, if available, should be shown.

(b) Full name of applicant and home address.

(c) Job title, address of employment and department or office.

10. **Registration Fee**

The required registration fee for each course is stated in the appropriate appendix. Ministry employees may pay the fee on registration. Registration fees must accompany the applications of non-Ministry applicants, and

(a) For all courses except MEA/MOE co-sponsored courses (Appendices 15, 16 and 17), the cheque or money order must be made payable to Training and Certification Section.

(b) For MEA/MOE co-sponsored courses (Appendices 15, 16 and 17), the cheque or money order must be made payable to Municipal Engineers Association of Ontario.

11. An application (registration fee, if applicable) should be forwarded to the Registration Secretary at the address shown in the Preface as early as possible and desirably no later than the date shown below:

September Courses	-	July 15
October Courses	-	August 15
November Courses	-	September 15
December Courses	-	October 15
January Courses	-	November 15
February Courses	-	December 15
March Courses	-	January 15
April Courses	-	February 15
May Courses	-	March 15

12. If a course is over-subscribed, selection of candidates will be based on date of receipt of application. As soon as possible after its receipt, the individual's employer will be notified if the application is accepted. If the course of first choice is oversubscribed and an alternate has been shown on the application, the nominee will be listed for the alternative course (if space is available), subject to confirmation by the employer.

13. Pre-Course Study

Prior to a course, an information package will be forwarded to each applicant. This will include general course information, a sketch map showing course location and, in most cases, reference material for pre-course study.

14. Pre-course study is required for many of the courses. It is essential that employers encourage applicants to review the material provided for that purpose. For certain courses, the applicant will be required to submit solutions to problems forwarded with study material.

15. Course Completion

The appropriate appendix shows the minimum average to be attained for successful completion of the course. A candidate's results and certificate will be forwarded to his employer, who is responsible for informing the individual.

As do many other organizations, such as the WPCF, AWWA and APWA, Environment Ontario now awards Continuing Education Unaits (CEUs) to participants who successfully complete certain courses or workshops. A permanent record of CEUs awarded to individuals will be maintained by the Training and Certification Section. A participant may request this record to use, if necessary, to meet requirements for

(a) Documentation of continuing qualifications for certification of operational staff of a water or wastewater utility;

(b) Evidence of personal and vocational growth and adjustment to meet changing career demands;

(c) Demonstration of a conscious effort towards personal development.

CEUs are awarded on the basis that one (1) CEU is equal to ten contact hours of formal instruction in job related training. Thus, for example, 3.0 CEUs will be awarded for successful completion of the Activated Sludge Process Workshop, since it involves 30 hours of formal instruction. The assigned value is shown on the appropriate appendix in this publication.

16. **Training Facilities**

(a) These are located at the Ontario Experimental and Training Facility, (OEF) Brampton and the Ministry Laboratory, Resources Road. The sketch map at Appendix 29 shows these locations.

(b) Training conducted outside of Toronto will be held in suitable accommodation obtained specifically for the session.

17. **Transportation and Accommodation**

(a) These arrangements, including reservations, are the responsibility of the trainee. The sketch map indicates the motel/hotel area which is within reasonable proximity to the training facilities. A list of hotels with approximate room costs is at Appendix 30.

(b) Employers must ensure that trainees on arrival at the course location are in possession of sufficient funds to meet anticipated expenses, including the registration fee if not previously paid.

18. Training manuals published by the Ministry of Environment are available for purchase from:

Publication Centre
Ministry of Government Services
880 Bay St., (5th Floor)
Toronto, Ontario M7A 1N8

These include:

Basic Sewage Treatment Operation	$ 2.00	
Activated Sludge Process	2.00	
Primary Treatment and Sludge Digestion	2.00	
Basic Water Treatment Operation	2.00	
Surface Water Treatment Operation	3.00	
Basic Gas Chlorination	2.00	
Pump Operation	2.00	
Preventive Maintenance	2.00	
Acoustics Technology I, II and III	2.00	(each)
Acoustics Technology in Land Use Planning Vols. I and II	10.00	(each)
Digester Gas System Maintenance	2.00	
Water Distribution Operations and Maintenance	3.00	
Industrial Abatement Vols. I and II	2.00	(each)

19. Manuals published by The Ontario Municipal Engineers Association include:

Sewer and Water Main Design Manual	$10.00	
Sewer and Watermain Construction Inspectors Course Manuals I and II	$ 5.00	(each)

These are available for purchase by writing to:

Mr. G. D. Dougall, P. Eng.
MEA Treasurer & Publications Secretary
Courthouse
P. O. Box 55
Brockville, Ontario
K6V 5V8

20. Prices are subject to change without notice.

Appendix 2

Course Description

Basic Sewage Treatment Operation Course

Purpose:

The Basic Sewage Treatment Operation Course is designed primarily for operators in training and to increase on-the-job efficiency of wastewater treatment plant operators. The program stresses "the need to know" of all processes associated with wastewater treatment. This course is a prerequisite to the Activated Sludge Workshop and the Primary Treatment and Digestion Workshop. CEU Value 3.0.

Scope:

The course covers the following topics:

A. SEWAGE CHARACTERISTICS
B. BACTERIOLOGY OF SEWAGE
C. PRIMARY TREATMENT
D. THE ACTIVATED SLUDGE PROCESS
E. DIGESTION OF SLUDGE
F. SLUDGE HANDLING
G. INDUSTRIAL WASTE
H. CHLORINATION OF SEWAGE
I. BASIC LABORATORY TESTS
J. SAMPLING AND RECORD KEEPING
K. SAFETY

Pre-Course Familiarization:

Pre-course study material will be provided. When preparing to attend this course, an applicant must:

(a) Review the Ministry manual, Basic Sewage Treatment Operation;

(b) Complete the exercise in the Ministry manual, Mathematics for Water and Sewage Operators.

Prerequisites:

(a) Employment and desirably 6 months experience in the operation of a wastewater treatment plant;

(b) Desirably Grade XII academic standing.

Passing Grade:

70 per cent

Registration Fee:

$35.00 payable to "Training and Certification Section".

Appendix 3

Course Description

Activated Sludge Workshop

Purpose:

This workshop emphasizes process control and troubleshooting. It is specifically directed at an operator employed as, or likely to be promoted to, shift foreman, operator-in-charge or chief operator of an activated sludge plant. CEU Value 3.0.

Scope:

The workshop which includes considerable "hands-on" participation covers the following:

A. ACTIVATED SLUDGE OPERATING PRINCIPLES
B. FACTORS AFFECTING THE PROCESS
C. SAMPLING AND FLOW MEASUREMENT
D. IDENTIFICATION AND SOLUTION OF OPERATING PROBLEMS
E. PHOSPHORUS REMOVAL
F. MICROSCOPIC EXAMINATION
G. LABORATORY TESTS INCLUDING DO, pH, BOD_5, PHOSPHOROUS DETERMINATION

Pre-Course Familiarization:

Pre-Course study material will be provided. When preparing to attend this workshop an applicant must:

(a) Review the Ministry manual, Activated Sludge Process;

(b) Complete the exercises in the Ministry manual, Mathematics for Water and Sewage Operators.

Prerequisites:

Successful completion of the Ministry of the Environment Basic Sewage Treatment Operation Course; or equivalent.

Passing Grade:

70 per cent

Registration Fee:

$35.00 payable to "Training and Certification Section".

Appendix 4

Course Description

Primary Treatment and Digestion Workshop

Purpose:

The Primary Treatment and Digestion Workshop emphasizes process control and troubleshooting. It is specifically directed at an operator employed as, or likely to be promoted to, shift foreman, operator-in-charge or chief operator of a primary treatment plant. CEU Value 3.0.

Scope:

The workshop which includes "hands-on" participation covers the following topics:

A. RAW SEWAGE CHARACTERISTICS
B. PUMPING STATIONS & STANDBY POWER
C. COLLECTION AND PRETREATMENT WORKS
D. PRIMARY SEDIMENTATION
E. ANAEROBIC AND AEROBIC DIGESTION
   - THEORY
   - OPERATION & CONTROLS
   - PROBLEMS
F. LABORATORY ANALYSES
G. SLUDGE PROCESSING & DISPOSAL
H. GAS COLLECTION SYSTEMS

Pre-Course Familiarization:

Pre-course study material will be provided. When preparing to attend this workshop, the applicant must:

(a) Review the Primary Treatment and Digestion manual;

(b) Complete the exercises in the Ministry manual, Mathematics for Water and Sewage Operators.

Prerequisites:

Successful completion of the Ministry Basic Sewage Treatment Operation Course or equivalent.

Passing Grade:

70 per cent

Registration Fee:

$35.00 payable to "Training and Certification Section".

Appendix 5

Course Description

Basic Water Treatment Operation Course

Purpose:

The Basic Water Treatment Operation Course is designed primarily for operators in training and to increase on-the-job efficiency of water treatment plant operators. The program stresses "the need to know" rather than the "nice to know" of all processes associated with water treatment. This course is a prerequisite to the Surface Water Treatment Workshop. CEU Value 3.0.

Scope:

The course covers the following topics:

A. WATER BACTERIOLOGY AND SAMPLING
B. PHYSICAL AND CHEMICAL CHARACTERISTICS
C. WATER SOURCES
D. COAGULATION, FLOCCULATION AND SEDIMENTATION
E. WATER FILTRATION
F. CHLORINATION
G. SAFETY
H. BASIC LABORATORY TESTS
I. RECORDS
J. CHEMICAL DOSAGE CALCULATIONS

Pre-Course Familiarization:

Pre-Course study material will be provided. When preparing to attend this course, an applicant must:

(a) Review the Ministry manual, Basic Water Treatment Operation;

(b) Complete the exercises in the Ministry manual, Mathematics for Water and Sewage Operators.

Prerequisites:

(a) Employment and desirably six months experience in the operation of water treatment plants;

(b) Desirably Grade XII academic standing.

Passing Grade:

70 per cent

Registration Fee:

$35.00 payable to "Training and Certification Section".

Appendix 6

Course Description

Surface Water Treatment Workshop

Purpose:

The Surface Water Treatment Workshop is designed to increase the knowledge of experienced water treatment plant operators. It is specifically directed at an operator employed as, or likely to be promoted to, shift foreman, operator-in-charge or chief operator of a water treatment plant. CEU Value 3.0.

Scope:

The workshop which includes considerable "hands-on" participation covers the following topics:

A. COAGULATION
B. FILTRATION
C. WATER TREATMENT CHEMISTRY
D. TASTE & ODOUR CONTROL
E. LABORATORY TESTS
F. MICROBIOLOGICAL CONSIDERATIONS
G. PROBLEM SOLVING

Pre-Course Familiarization:

Pre-course study material will be provided. When preparing to attend this workshop an applicant must:

(a) Review the Ministry manual, Surface Water Treatment;

(b) Complete the exercises in the Ministry manual, Mathematics for Water and Sewage Operators.

Prerequisites:

Successful completion of the Ministry of the Environment Basic Water Treatment Operation Caourse; or equivalent.

Passing Grade:

70 per cent

Registration Fee:

$35.00 payable to "Training & Certification Section".

Appendix 7

Course Description

Basic Gas Chlorination Workshop

Purpose:

The Basic Gas Chlorination Workshop is designed to familiarize the new or inexperienced operator with the operation of various types of gas chlorination equipment, as well as to teach maintenance and troubleshooting procedures. CEU Value 3.0.

Scope:

The workshop which includes considerable "hands-on" participation covers the following topics:

A. CHLORINATION THEORY
B. COMPONENTS OF A GAS CHLORINATION INSTALLATION
C. CONTROL SYSTEMS
D. STORAGE AND HANDLING OF CHLORINE GAS CYLINDERS
E. SAFETY PRACTICES
F. CHLORINATION EQUIPMENT & COMPONENTS
G. START-UP & SHUT-DOWN PROCEDURES
H. GENERAL MAINTENANCE
I. TROUBLESHOOTING
J. CHLORINATION LABORATORY TESTS

Pre-Course Familiarization:

Pre-course study material, including the Basic Gas Chlorination manual, will be provided.

Prerequisites:

Employment in a water or wastewater treatment plant or as an operator of chlorination equipment used in industry or recreational facilities.

Passing Grade:

70 per cent

Registration Fee:

$35.00 payable to "Training and Certification Section".

Appendix 8

Course Description

Pump Operation Workshop

Purpose:

This workshop, developed jointly with the Ontario Municipal Engineers Association, is designed to increase the knowledge and skills of personnel involved in operating and maintaining all forms of pumping and allied equipment. It is an extension of training for operators of water and wastewater treatment utilities. CEU Value 3.0.

Scope:

The workshop which includes "hands-on" participation covers the following:

A. CHARACTERISTICS OF MATERIALS PUMPED
B. PUMPING THEORY (HYDRAULICS & ENERGY)
C. TYPES OF PUMPS, FOR VARIOUS APPLICATION
D. CENTRIFUGAL PUMPS
E. POSITIVE DISPLACEMENT PUMPS
F. CONTROLS (PUMP APPLICATION PROCESS REQUIREMENT)
G. VALVES
H. MOTORS
I. SAFETY

Pre-Course Familiarization:

Pre-course study material will be provided. When preparing to attend this workshop an applicant must review the Pump Operation Workshop Manual.

Prerequisites:

The candidate must be employed as an operator or maintenance man in a water or wastewater utility.

Passing Grade:

70 per cent

Registration Fee:

$35.00 payable to "Training and Certification Section".

Appendix 9

Course Description

Preventive Maintenance Workshop

Purpose:

The Preventive Maintenance Workshop is designed to increase the knowledge and on-the-job efficiency of an operator who has some responsibility for maintaining water and wastewater plant equipment. It will teach the trainee good practices which are essential to achieve and sustain efficient operations. CEU Value 3.0.

Scope:

The workshop which includes "hands-on" participation covers the following topics:

A. TOOLS AND WORKSHOP SET-UP
B. UTILIZATION OF DRAWINGS AND EQUIPMENT MANUALS
C. MAINTENANCE OF PIPING AND VALVES
D. LUBRICATION
E. BEARINGS, SEALS AND PACKING
F. ALIGNMENT
G. PUMP TROUBLESHOOTING
H. MAINTENANCE OF PROCESS EQUIPMENT

Pre-Course Familiarization:

Pre-course study material, including the Preventive Maintenance Workshop manual, will be provided.

Prerequisites:

The candidate must be employed in water or wastewater treatment utility operations and/or maintenance.

Passing Grade:

70 per cent

Registration Fee:

$35.00 payable to "Training and Certification Section".

Appendix 10

Course Description

Digester Gas Systems Maintenance Workshop

Purpose:

As required by the Energy Act 1971 and related Regulations, the workshop is designed to upgrade the knowledge and skills of personnel who operate and maintain the gas system in a wastewater treatment plant. The individual may write the Ministry of Consumer and Commercial Relations (MCCR) examination for certification as a Maintenance Gas Fitter as part of the workshop final examination. CEU Value 3.0.

Scope:

The workshop covers the following topics:

A. DIGESTION PROCESS AND GAS PRODUCTION
B. DIGESTER GAS SYSTEM COMPONENTS
C. GAS PIPING
D. FUELS AND COMBUSTION
E. SAFETY

Pre-Course Familiarization:

When preparing to attend this workshop, an applicant should familiarize himself with digester operations, and review the Energy Act 1971, related Regulations and the Installation Codes for Natural Gas (CGA 149.1-1976), Propane (CGA 149.2-1976) and Oil Burning Equipment (CSA Standard B139-71).

Prerequisites:

The applicant must be employed in the maintenance of the gas system in a wastewater treatment plant. Desirably he should have completed the MOE workshop Primary Treatment and Sludge Digestion and have training in the procedures for safe entry into confined spaces.

Passing Grade:

(a) 70%

(b) A passing grade of 75% must be attained on the MCCR test for certification as a Maintenance Gas Fitter.

Registration Fee:

$35.00 payable to "Training and Certification Section", for the workshop

plus

$20.00 payable to Treasure of Ontario if the individual elects to write the MCCR Certification examination.

Appendix 11

Course Description

Operation and Maintenance of Water Distribution Systems

Purpose:

The course Operation and Maintenance of Water Distribution Systems is designed for new staff and to increase on-the-job efficiency of others. On completion of this course and the associated MOE workshops on pump operations and equipment maintenance, the individual will be capable of operating and maintaining water distribution systems, correcting malfunctions of equipment and performing quality control tests. CEU Value 3.0.

Scope:

The following topics will be dealt with:

A. WATER SOURCES AND TREATMENT
B. FACTORS IN PLANNING AND DESIGN
C. WATER QUALITY OBJECTIVES
D. WATERMAIN PIPES, JOINTS
E. APPURTENANCES
F. HYDRAULICS
G. LEAK DETECTION, REPAIR, THAWING, RESTORATION
H. CLEANING, FLUSHING, DISINFECTION, CROSS CONNECTIONS
I. REPORTS AND RECORDS, PUBLIC RELATIONS
J. SAFETY
K. CORROSION

Pre-Course Familiarization:

The applicant must review pre-course study material including the Ministry manual, Operation and Maintenance of Water Distribution Systems.

Prerequisites:

(a) Employed in operating and/or maintaining a water distribution system;

(b) Desirably Grade XII academic standing.

Passing Grade:

70 per cent

Registration Fee:

$35.00 payable to "Training and Certification Section".

Appendix 12

Course Description

Operation and Maintenance of Wastewater Collection Systems

Purpose:

The Workshop, Operation and Maintenance of Wastewater Collection Systems is designed for new staff and to increase on-the-job efficiency of others. On completion of this course and the associated MOE courses on pump operations and equipment maintenance the individual will understand the operation of a collection system and be capable of operating and maintaining the system and correcting malfunctions of equipment. CEU Value 3.0.

Scope:

The following topics will be dealt with:

A. DESIGN PARAMETERS
B. COMBINED/SANITARY SEWERS, APPURTENANCES
C. LIFT STATIONS
D. PLANNING FOR EMERGENCY SERVICES
E. FLOW MEASUREMENT AND CONTROL
F. INSPECTION AND TESTING
G. CLEANING, MAINTENANCE AND REPAIR
H. RECORDS AND ORGANIZATION
I. SAFETY

Pre-Course Familiarization:

An applicant must review the reference notes on Operation and Maintenance of Wastewater Collection Systems.

Prerequisites:

(a) Employed in the operation and/or maintenance of a wastewater collection system;

(b) Desirably Grade XII academic standing.

Passing Grade:

70 per cent

Registration Fee:

$35.00 payable to "Training and Certification Section".

Appendix 13

Course Description

Laboratory Skills for Plant Operators

Purpose:

The workshop is designed to provide operators with the skills to carry out inplant testing and analysis. The curriculum covers techniques, procedures and tests which provide information for day-to-day process control. A successful candidate will be capable of performing the laboratory tests in either a water or wastewater treatment environment, evaluating data and advising on actions required for process control.

Scope:

The following topics will be dealt with:

A. SAMPLING TECHNIQUES FOR WATER AND WASTEWATER TREATMENT PROCESSES

B. LABORATORY TECHNIQUES INCLUDING SAFETY

C. INTERPRETATION AND REPORTING

D. OPERATION AND MAINTENANCE OF LABORATORY INSTRUMENTS

E. LABORATORY TESTING USING:

1. Turbidimeters
2. Spectrophotometers
3. Colour Comparators
4. Amperometric Titrators
5. Microscope
6. Jar Tester
7. Chromatographic Techniques
8. Distillation Apparatus
9. D.O. Meters
10. pH Meters
11. Analytical Balance

Pre-Course Familiarization:

Precourse study material will be provided. The applicant must ensure that he is knowledgeable in water and wastewater treatment processes.

Prerequisites:

(a) Two to three years experience in plant operations;

(b) Successful completion of the Ministry of Environment Activated Sludge Process Workshop and/or Primary Treatment and Digestion Workshop and/or Surface Water Treatment Workshop.

or

acceptable equivalents

Passing Grade:

70 percent in written examination and demonstrated ability to carry our laboratory analyses.

Registration Fee:

$35.00 payable to "Training and Certification Section".

Appendix 14

Course Description

Advanced Water/Wastewater Treatment

Purpose:

This workshop is designed to upgrade the knowledge of chief operators and plant superintendents on water and wastewater advanced treatment methods. The curriculum covers tertiary treatment methods which have recently been introduced and those which are likely to be available in the near future to ensure efficient and effective handling of plant wastes, economic plant operation and that the quality of plant effluents meet Ministry guidelines.

Scope:

A. PHYSICAL/CHEMICAL TREATMENT METHODS

(1) Coagulation/Flocculation
(2) Sedimentation
(3) Filtration
(4) Adsorption
(5) Ion Exchange
(6) Oxidation/Disinfection
(7) Reverse Osmosis

B. BIOLOGICAL TREATMENT METHODS

(1) Phosphorus Removal
(2) Nitrification/Denitrification

C. SLUDGE TREATMENT AND DISPOSAL

(1) Thickening/Dewatering
(2) Incineration
(3) Sludge use in Agriculture

D. SAMPLING TECHNIQUES

E. Analysis, Interpretation and Reporting

Pre-Course Familiarization:

Pre-course study material will be provided.

Prerequisites:

(a) Two to three years experience as a chief operator or superintendent of a water or wastewater treatment plant. Desirably experience in both treatment fields;

(b) Successful completion of the Ministry of the Environment Activated Sludge Process Workshop and/or Surface Water Treatment Workshop.

Passing Grade:

70 per cent

Registration Fee:

$35.00 payable to "Training and Certification Section".

Appendix 15

Course Description

Sewer and Watermain Design Courses

Purpose:

This course, developed and conducted jointly with the Ontario Municipal Engineers Association, is intended to broaden the understanding and knowledge of personnel who are engaged in the design of Sewer and Watermain Systems. Topics covered on the first day are common to both course segments. During the subsequent three (3) days, each is held separately. The selection of the segment (sewer design or watermain design) should be clearly identified in the application. CEU Value each segment 2.5.

Scope:

Sewer Design

A. PROJECT PROCEDURE
B. PHYSICAL LAYOUT OF SEWER & WATERMAIN SYSTEMS
C. M.O.E. APPROVALS
D. ENGINEERING AGREEMENTS
E. CONSTRUCTION PRACTICES
F. STORM WATER MANAGEMENT PART 1
G. STORM WATER MANAGEMENT PART II
H. SEWER APPURTENANCES
I. HOW DESIGN AFFECTS SEWER MAINTENANCE
J. SEWER MATERIALS
K. SEWER DESIGN GENERAL
L. HYDRAULIC ASPECTS CF SEWER DESIGN
M. SEWER DESIGN CALCULATIONS
N. STRUCTURAL PROBLEM SOLVING

Watermain Design

A. PROJECT PROCEDURE
B. PHYSICAL LAYOUT OF SEWER & WATERMAIN SYSTEMS
C. M.O.E. APPROVALS
D. ENGINEERING AGREEMENTS
E. CONSTRUCTION PRACTICES
F. FRICTION HYDRAULICS
G. HOW DESIGN AFFECTS MAINTENANCE
H. CALCULATING DEMANDS
I. WATERMAIN MATERIALS
J. WATERMAIN APPURTENANCES
K. WATERMAIN INSULATION
L. DESIGN CONSIDERATION WITH OTHER UTILITIES
M. DESCRIPTION OF LOOP ANALYSIS
N. VALVE AND METER SIZING
O. WATERMAIN CORROSION

Pre-Course Familiarization:

(a) Review the lecture notes and other material mailed out for pre-course study;

(b) Answer the pre-course study problems, which will be discussed during the course.

Prerequisites:

Candidates for this course should have some basic understanding of sewer and watermain design and should be employed, at least in part, in the design of Sewer and Watermain Systems.

Registration Fee:

$265.00 (includes reference materials, meals and accommodation for 4 days). Registration fee must be made payable to MUNICIPAL ENGINEERS ASSOCIATION.

Appendix 16

Course Description

MEA/MOE Inspector's Course No. 1

Purpose:

This course, developed and conducted jointly with the Ontario Municipal Engineers Association, is intended to broaden the understanding and knowledge of persons engaged in inspecting Sewer and Watermain construction projects. CEU Value 3.0.

Scope:

The course includes presentations on and discussions of the following topics:

A. BASIC ELEMENTS OF CONTRACT DOCUMENTS
B. ENVIRONMENTAL CONSIDERATIONS
C. CONSTRUCTION LAYOUT
D. CONSTRUCTION SAFETY
E. SEWER INSTALLATION & TESTING
F. WATERMAIN INSTALLATION & TESTING
G. EXCAVATION AND BACKFILL
H. DEWATERING METHODS
I. PIPE MATERIAL & INSTALLATION
J. BLASTING
K. RESTORATION
L. WATERMAIN DISINFECTION
M. T.V. INSPECTION & INTERNAL GROUTING OF SEWER PIPE

Pre-Course Familiarization:

Pre-course study material will be provided. Personnel attending this course should be familiar with the Regulations in their own area.

Prerequisites:

Those attending the course should be employed in the private or public sector where a significant portion of the job function is inspection of the construction of Sewers and Watermains.

Passing Grade:

60 per cent

Registration Fee:

$35.00 payable to Municipal Engineers Association of Ontario.

Appendix 17

Course Description

MEA/MOE Inspector's Course No. 2

Purpose:

This course, developed and conducted jointly with the Ontario Municipal Engineers Association, is intended to broaden the understanding and knowledge of persons engaged in inspecting Sewage and Water construction projects. CEU Value 2.5.

Scope:

The course includes presentations on and discussions of the following topics:

A. TENDERING AND CONTRACT PROCEDURES
B. ROLE OF THE INSPECTOR
C. RECORD KEEPING
D. SOILS IN CONSTRUCTION
E. WATERMAIN DESIGN
F. SEWER DESIGN
G. CONSTRUCTION SAFETY
H. PLANT LAYOUT
I. PLANT EQUIPMENT
J. REINFORCED CONCRETE: THEORY AND PRACTICE
K. BLASTING CONTROL
L. TUNNELLING

Pre-Course Familiarization:

Pre-course study material will be provided. Personnel attending this course should be familiar with the Regulations in their own area.

Prerequisites:

Those attending the course should be employed in the private or public sector where a significant portion of the job function is inspection of the construction of Sewage and Water facilities.

Passing Grade:

60 per cent

Registration Fee:

$45.00 payable to Municipal Engineers Association of Ontario.

Appendix 18

Course Description

Industrial Abatement-Air Management Course

Purpose:

The Industrial Abatement-Air Management Course consists of three five-day sessions. It is designed to familiarize personnel with the air management aspect of Industrial Abatement, and to increase the efficiency of environmental staff involved with those duties.

Scope:

Part I:

A. INTRODUCTION TO AIR MANAGEMENT: FEDERAL JURISDICTION
B. EFFECTS OF AIR POLLUTION INCLUDING PHYTOXICOLOGY
C. FUELS: COMBUSTION: BOILERS: INCINERATION

Part II:

A. METEOROLOGICAL ASPECTS AND MEASUREMENT OF AIR POLLUTION
B. AIR CONTAMINANT DEPOSITS; ODOURS
C. ENVIRONMENTAL STAFF DUTIES AND REPORTS
D. SEWAGE TREATMENT

Part III:

A. INDUSTRIAL PROCESSES
B. CONCEPTS OF INDUSTRIAL AIR POLLUTION CONTROL
C. CONTROL EQUIPMENT

Pre-Course Familiarization:

Study material will be provided. When preparing for any part of this course an applicant must study the training manual.

Prerequisites:

An applicant must be responsible for functions related to air management aspects of a program.

There is no prerequisite that one part of the course be taken before another, but it is strongly recommended that applicants who are new to this field take Part I first.

Passing Grade:

Those trainees who achieve passing grades (70 per cent) for all three parts of the course will be awarded a certificate.

Registration Fee:

The fee for each part of the course is:

1.	Government and Municipal employees	$35.00
2.	Others	$60.00

Payable to "Training and Certification Section".

Appendix 19

Course Description

Visible Emissions Identification Certificate Course

Purpose:

The Visible Emissions Identification Certificate Course is designed to train and certify personnel as being proficient in the identification of the opacities of visible emissions. It will also help to prepare the provincial officer for appearance in court as an expert witness. The course is a combination of lecture and demonstration, with practice.

Scope:

The course covers the following topics:

A. VISIBLE EMISSIONS - THEIR CAUSE AND REGULATION
B. CLASSIFICATION AND IDENTIFICATION OF SOURCES
C. PRINCIPLES OF COMBUSTION
D. METEOROLOGICAL FACTORS IN READING OF VISIBLE EMISSIONS
E. LEGAL ASPECTS AND COURTROOM APPEARANCES
F. PRACTICE IN IDENTIFICATION OF OPACITIES OF VISIBLE EMISSIONS

Pre-Course Familiarization:

When preparing to attend this course the applicant should read in advance the Visible Emissions Identification Manual, which will be sent out with pre-course material.

Prerequisite:

None

Passing Grade:

(a) 70 per cent on a written exam and;

(b) Identification of the opacity of a set number of consecutive visible emissions within the permitted deviation standards.

Registration Fee:

(a) For the Certificate Course:

(1)	Government and Municipal Employees	$35.00
(2)	Others	$60.00

(b) For Recertification

None

Appendix 20

Course Description

Control of Liquid Industrial Waste

Purpose:

The four day course, Control of Liquid Industrial Waste, is designed for those responsible for the enforcement of a Liquid Industrial Waste By Law. It will provide knowledge of and solutions to problems which result from industrial waste discharges into a storm sewer a wastewater collection system or a wastewater treatment plant. CEU Value 2.5.

Scope:

The following topics will be dealt with:

A. CHARACTERISTICS, PROBLEMS AND GENERAL TREATMENT METHODS OF SELECTED LIQUID INDUSTRIAL WASTES
B. FLOW MEASUREMENT AND SAMPLING
C. SURVEYS AND INSPECTIONS
D. EMERGENCY PREPAREDNESS
E. REGULATIONS FOR HAULAGE AND DISPOSAL
F. SAFETY
G. MUNICIPAL CONTROL PROGRAM

Pre-Course Familiarization:

Pre-course study material, including a manual, will be provided. When preparing to attend, an applicant should familiarize himself with all aspects of the responsibilities of his organization for the control of liquid industrial wastes.

Prerequisites:

Those attending should have a good knowledge of wastewater treatment operations and have some responsibility for the functions dealt with on the course.

Passing Grade:

60 per cent

Registration Fee:

$35.00 payable to the "Training and Certification Section".

Appendix 21

Course Description

Waste Disposal by Landfilling

Purpose:

Seminars on Waste Disposal by Landfilling are held in Regional locations to increase the efficiency of municipal and private site operations. Those for management staff will deal with legislation requirements, design criteria and reports and management functions while those for operations staff will emphasize site development, operating procedures and special problems.

Scope:

A. LEGISLATION
B. SITE DESIGN, DEVELOPMENT AND OPERATIONS
C. LEACHATE AND GAS CONTROL
D. SPECIAL PROCEDURES FOR DISPOSAL OF PROBLEM MATERIAL
E. AIDS FOR WINTER OPERATIONS
F. CLOSURE AND PERPETUAL CARE
G. MANAGEMENT

Pre-Course Familiarization:

Those attending should review The Environmental Protection Act, The Environmental Assessment Act, associated Regulations and the Manual, Waste Disposal by Landfilling.

Prerequisites:

Nil

Passing Grade:

Not applicable

Registration Fee:

In certain cases a fee may be charged to cover costs incurred for rental of classroom space, equipment etc.

Appendix 22

Course Description

Groundwater for Environmental Officers

Purpose:

The course, Groundwater for Environmental Officers, to be held in Regional locations is primarily designed for the Ministry Municipal and Private and Industrial Abatement staff. It will increase their knowledge of the causes of groundwater contamination, the problems which result and remedial measures which can be undertaken. A course in a particular Region will be tailored to meet the needs of that staff. CEU Value 2.0.

Scope:

The following topics will be covered:

A. GROUNDWATER OCCURRENCE AND MOVEMENT
B. EXPLORATION AND EXTRACTION
C. CONTAMINATION
D. MANAGEMENT
E. APPROACH TO PROBLEM SOLVING

Pre-Course Familiarization:

Pre-course study material will be provided. Those attending will presume to have already acquired a basic knowledge in soils, understand the hydrologic cycle and Ministry legislation and policies.

Prerequisites:

The course is restricted to Ministry staff.

Passing Grade:

Not applicable

Registration Fee:

To be established at the time arrangements are made for the course.

Appendix 23

Course Description

Emergency Response Course

Purpose:

The Emergency Response course consists of five components, each of varying duration, designed to increase the knowledge and capability of those who may be involved in a hazardous emergency. A course, in a particular location, can be oriented to meet the needs of the Region. Regardless of the scope of the course, participants must include Ministry staff, local fire and police personnel and members of other organizations who would respond to an emergency. CEU Value to be established based on actual course curriculum.

Scope:

The course covers the following programmes:

A. Transportation of Dangerous Goods, including Canadian legislation, transportation modes, placarding, environmental protection and planning. Duration: 3 days

B. Pipeline Transportation Emergencies, covering pipeline systems, physical proprities, planning, response and clean up. Duration: 1 day

C. Emergencies with Liquified Natural Gas (LNG) and Liquified Petroleum Gas, (LPG) including properties, usage, tanks, valves controlling leaks and boiling Liquid Expanding Vapour Explosion (BLEVE). Duration: $\frac{1}{2}$ day

D. Pesticide Fire and Spill Control covering recognition, first aid, environmental effects, planning, control, clean up and decontamination. Duration: $1\frac{1}{2}$ days

E. Hands on including sampling and testing contaminants, use of breathing apparatus, familiarization with road and rail tanker configuration and valving.

Pre-Course Familiarization:

When preparing to attend the course, an individual should familiarize himself with his organization's emergency response plan and study reference material available at his place of employment.

Prerequisites:

None

Passing Grade:

70 per cent

Registration Fee:

Payable to "Training and Certification Section".

1.	Government and Municipal Employees	$35.00
2.	Others	$60.00

This may be adjusted to cover costs incurred for rental of training accommodation, provision of lunch meals etc.

Appendix 24

Course Description

Environmental Investigations

Purpose:

The two week course is designed to upgrade the knowledge and skills of Provincial Officers who are responsible for carrying out investigations of incidents or alleged incidents of pollution of the environment. The course is conducted by the Ontario Police College (OPC) Aylmer, Ontario. Students will be provided with accommodation and meals.

Scope:

The following topics will be covered:

A. INTRODUCTION TO LAW
B. INVESTIGATIVE TECHNIQUES
C. EVIDENCE, WITNESSMANSHIP, COURTROOM PROCEDURES
D. SURVEILLANCE
E. PROVINCIAL OFFENCES ACT
F. MINISTRY LEGISLATION
G. FORENSIC ACCOUNTING

Pre-Course Familiarization:

Precourse study material will be provided. Those attending should carefully review the Acts and Regulations pertaining to environmental protection.

Prerequisites:

Attendance is restricted to Ministry staff.

Passing Grade:

Not applicable

Registration Fee:

There is no registration fee but costs for the OPC are recoverable. Charges are approximately $350.00 per student.

Appendix 25

Course Description

Aids to Investigators

Purpose:

This five day course is designed to provide Provincial Officers with the knowledge of resources which can be used to assist them in their investigations and in obtaining evidence related to pollution incidents.

Scope:

The following topics will be covered:

A. LEGAL ASPECTS OF PHOTO SURVEILLANCE
B. CAMERA SURVEILLANCE SYSTEM
C. INVESTIGATIVE PHOTOGRAPHY
D. SPECIAL SURVEILLANCE TECHNIQUES INCLUDING REMOTE SENSING
E. AIR PHOTO INTERPRETATION INCLUDING THE USE OF STEREOSCOPES AND MICROSCOPES
F. INVESTIGATIVE ASSISTANCE AVAILABLE IN THE MINISTRY

Pre-Course Familiarization:

None

Prerequisites:

Restricted to Ministry staff involved in investigations of pollution incidents or alleged incidents.

Passing Grade:

Not applicable

Registration Fee:

$35.00 payable to the "Training and Certification Section".

Appendix 26

Course Description

Noise Training Courses

The Acoustics Technology courses I, II, III and IV and Acoustics Technology in Land Use Planning have been revised and a new program Occupational Noise Control has been developed. Course descriptions are on pages 59-62 inclusive.

Commencing in the 1981/82 session all Noise Control - Acoustics Technology Courses are offered concurrently during one week in March of each year. These intensive courses are jointly sponsored by the Canadian Acoustical Association and the Ministry of the Environment. Opportunities are provided during the training week to meet and discuss problems with invited specialists in Environmental Acoustics and Occupational Noise Control.

Modules of Instruction

	Monday	Tuesday	Wednesday	Thursday	Friday
Acoustics 1	Intro. Theory	Misc. Topics	Practical Workshops	Practical Workshops	Review & Exam.
Acoustics 2	Review & Theory	"	"	"	"
Acoustics 3	"	"	"	"	"
Acoustics 4	"	"	"	"	"
Land Use 1	Theory	"	"	"	"
Occupational Noise 1	"	"	"	"	"
Evening Session	Individual Study	Course Dinner	Guest Panel	Guest Panel	Free

For further information contact:

Noise Pollution Control Secton
Ministry of the Environment
135 St. Clair Ave. W.
Toronto, Ontario
M4V 1P5

Tel: (416) 965-1193

Course Description

Noise Control - Acoustics Technology Certificate Course

Purpose:

The Acoustics Technology Certificate Course consists of four parts. It is designed to familiarize personnel with the techniques of practical acoustics required to fulfill the obligations of the municipal noise control officer or other noise control and abatement agencies. Upon successful completion of the appropriate parts of the course, the trainee will be qualified to perform noise control duties at the level indicated by the certificate rank awarded, as follows:

Certificate	Course
Class 1	Acoustics I and II
Class 2	Acoustics I, II and III
Class 3	Acoustics I, II, III, IV

The Ontario Association of Certified Engineering Technicians and Technologists (OACETT) has approved the combined Acoustics I and II Courses as a single credit course for OACETT certification purposes. Consideration of Acoustics III and IV as OACETT credit courses is pending.

Scope:

The courses, offered in co-operation with the Canadian Acoustical Association, cover the following topics:

Acoustics I:

Introductory Acoustics Theory; Handling of noise complaints; Use of simple sound level meter, octave band analyser and calibration techniques; Measurement of traffic noise and industrial noise, Report procedures; Audiometry; Personal hearing test; Examination.

Acoustics II:

Review of Acoustics I; Theory; Noise complaint investigations; National and International Standards; Use of 1/3 octave analyser; Tape recorder; Impulse sound level meter; Introduction to Leq; Field work; Examination.

Acoustics III:

Review of Acoustics II; Theory; Graphic analyser; Statistical analyser; Sound descriptors; percentiles, cumulative and statistical distribution; Vibration analysis; Stationary source noise analysis; Laboratory; Field work; Examination.

Acoustics IV:

Review of Acoustics III; Theory; Use of digital monitors; Off-road and road side traffic measurements. Field investigation and reports; Technical Publications; Implementation of a Noise By-Law; Advanced procedures; Selection of instrumentation; Examination.

Pre-Course Familiarization:

Pre-course study material, including manuals, will be provided. When preparing to attend any part of this course, an applicant must complete the pre-course requirements.

Prerequisites:

Courses are to be taken in the order designated. Possession of a valid certificate of a lower rank is a pre-requisite for all courses Acoustics II through Acoustics IV inclusive, but recognition will be given for prior formal training in acoustics. (See Publication NPC-135, Section 2, of Model By-Law).

Passing Grade:

Candidates achieving a passing grade of 60% will be awarded a certificate of competency in acoustics technology in the rank achieved, valid for three calendar years only. Refresher courses should be taken at the achieved level or the next higher level, as appropriate.

Registration Fee:

The fee for each part of this four part course is:

1.	Ontario Government and Municipal employees	$ 35.00
2.	All others	$ 150.00

Cheques Payable to "Canadian Acoustical Association"

Enquiries & Registration: Noise Pollution Control Section
Mr. G. Murphy
Telephone (416) 965-1193

Course Description

Noise Control - Acoustics Technology In Land Use Planning

Purpose:

The course on Acoustics Technology in Land Use Planning discusses the impact of noise on land use. It is designed for the Noise Control Officer, urban planner, developer, and Architect.

Scope:

The course, offered in co-operation with the Canadian Acoustical Association, includes a review of Acoustics Technology Certificate Course I through III, and covers the following subjects:

A. COMMUNITY NOISE SURVEYS
B. LAND USE PLANNING CONCEPTS
C. PREDICTION FOR ROAD AND RAIL TRAFFIC NOISE LEVELS
D. THICK AND THIN BARRIER ATTENUATION
E. STATISTICAL SAMPLING TECHNIQUES
F. USE OF LEQ, LDN, NEF AND OTHER DESCRIPTORS
G. FIELD PROJECT
H. ANALYSIS OF DATA
I. REVIEW OF THE PLANNING ACT, BY-LAW AND PROCEDURES

Pre-Course Familiarization:

Candidates must review Part 1 of the Acoustics Technology Certificate course. Pre-Course study material, including manuals, will be provided.

Prerequisites:

Candidates must have successfully completed Acoustics Technology Certificate Course, Part 1, or have had suitable previous formal training. (See Publication NPC-135, Section 2, of Model By-Law).

Passing Grade:

Candidates achieving a passing grade of 60 per cent will be awarded a certificate denoting successful completion of the course.

Registration Fee:

1.	Ontario Government and Municipal Employees	$ 35.00
2.	All Others	$150.00

Cheques Payable to "Canadian Acoustical Association"

Enquiries & Registration: Noise Pollution Control Section
Mr. G. Murphy
Telephone (416) 965-1193

Course Description

Occupational Noise Control

Purpose:

The course on Occupational Noise Control discusses the impact of noise on hearing and health in the workspace. It is designed for the plant operator, factory and office employee, safety officer, supervisory staff and plant manager.

Scope:

The course, offered in co-operation with the Canadian Acoustical Association, includes a review of Acoustics Technology Certificate, Course I, and covers the following subjects:

A. INTRODUCTORY ACOUSTICS THEORY
B. ELEMENTS OF NOISE CONTROL
C. EFFECTS OF NOISE EXPOSURE ON HEARING
D. CONTROL OF MACHINERY NOISE
E. HEARING PROTECTION DEVICES
F. WORKPLACE NOISE MAPPING
G. USE OF THE SOUND LEVEL METER
H. IMPULSE NOISE ANALYSIS
I. VIBRATION AND HAND/ARM EFFECTS
J. AUDIOMETERS AND AUDIOMETRIC BOOTHS
K. LEGAL REQUIREMENTS, RECORD KEEPING

Pre-Course Familiarization:

Candidates must review Part 1 of the Acoustics Technology Certificate Course. Pre-Course study material will be provided.

Prerequisites:

None

Certificate:

Candidates achieving a passing grade of 60 per cent will be awared a certificate denoting successful completion of the course.

Registration Fee:

1.	Ontario Government and Municipal Employees	$ 35.00
2.	All Others	$ 150.00

Cheques Payable to "Canadian Acoustical Association"

Enquiries & Registration: Noise Pollution Control Section
Mr. G. Murphy
Telephone (416) 965-1193

Program Schedule 1981/82

Program	(Capacity)	Dates		Location	Remarks
Monitoring Water/Wastewater Operations	(25)	Feb. 8 - 12	1982	Brampton OEF	Operators only
Basic Sewage Treatment	(25)	Sep. 14 - 18	1981	Brampton OEF	Operators only
		Nov. 23 - 27	1981	Brampton OEF	Operators only
		Feb. 1 - 5	1982	Brampton OEF	
		Mar. 29 - Apr. 2	1982	Brampton OEF	Operators only
Activated Sludge Process	(25)	Oct. 19 - 23	1981	Brampton OEF	Operators only
		Jan. 11 - 15	1982	Brampton OEF	Operators only
		Mar. 8 - 12	1982	Brampton OEF	Operators only
		May 17 - 21	1982	Brampton OEF	
Primary Treatment & Sludge Digestion	(25)	Jan. 18 - 22	1982	Brampton OEF	Operators only
Basic Water Treatment	(25)	Sep. 14 - 18	1981	Brampton OEF	Operators only
		Dec. 7 - 11	1981	Brampton OEF	
		Mar. 22 - 26	1982	Brampton OEF	Operators only
		June 14 - 18	1982	Brampton OEF	Operators only
Surface Water Treatment	(25)	Nov. 16 - 20	1981	Brampton OEF	Operators only
		Mar. 1 - 5	1982	Brampton OEF	
		May 31 - Jun 4	1982	Brampton OEF	Operators only

Program Schedule 1981/82

Program	(Capacity)	Dates		Location	Remarks
Basic Gas Chlorination	(25)	Oct. 5 - 9	1981	Brampton OEF	Operators only
		Dec. 14 - 18	1981	Brampton OEF	Operators only
		Feb. 22 - 26	1982	Brampton OEF	Operators only
		Apr. 26 - 30	1982	Brampton OEF	Operators only
Pump Ops. Workshop	(25)	Sep. 21 - 25	1981	Brampton OEF	Operators only
		Nov. 23 - 27	1981	Brampton OEF	
		Feb. 15 - 19	1982	Brampton OEF	
		May 3 - 7	1982	Brampton OEF	Operators only
Preventive Maintenance	(25)	Oct. 26 - 30	1981	Brampton OEF	Operators only
		Jan. 25 - 29	1982	Brampton OEF	
		Apr. 19 - 23	1982	Brampton OEF	Operators only
Digester Gas Systems	(25)	Mar. 15 - 19	1982	Brampton OEF	Operators only
Op/Mtce Wastewater Collection		Nov. 2 - 6	1981	Brampton OEF	
Systems	(25)	June 7 - 11	1982	Brampton OEF	
Op/Mtce Water Distribution Systems	(25)	Sep. 28 - Oct. 2	1981	Brampton OEF	
		May 10 - 14	1982	Brampton OEF	
Laboratory Skills for Plant Operators		Feb. 8 - 12	1982	Brampton OEF	Operators only
Advanced Water/Wastewater Treatment		May 3 - 7	1982	Brampton OEF	Operators only

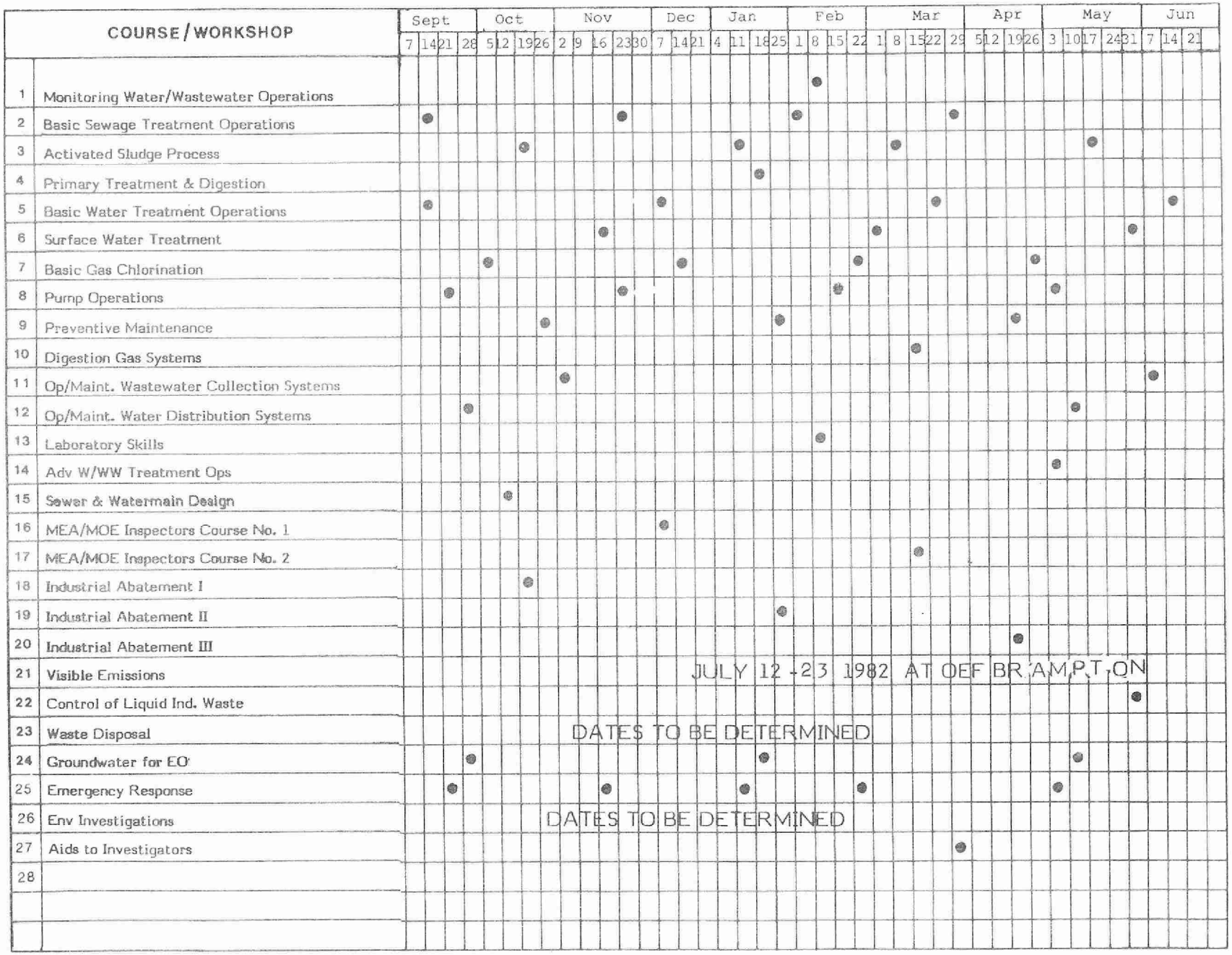
Program Schedule 1981/82

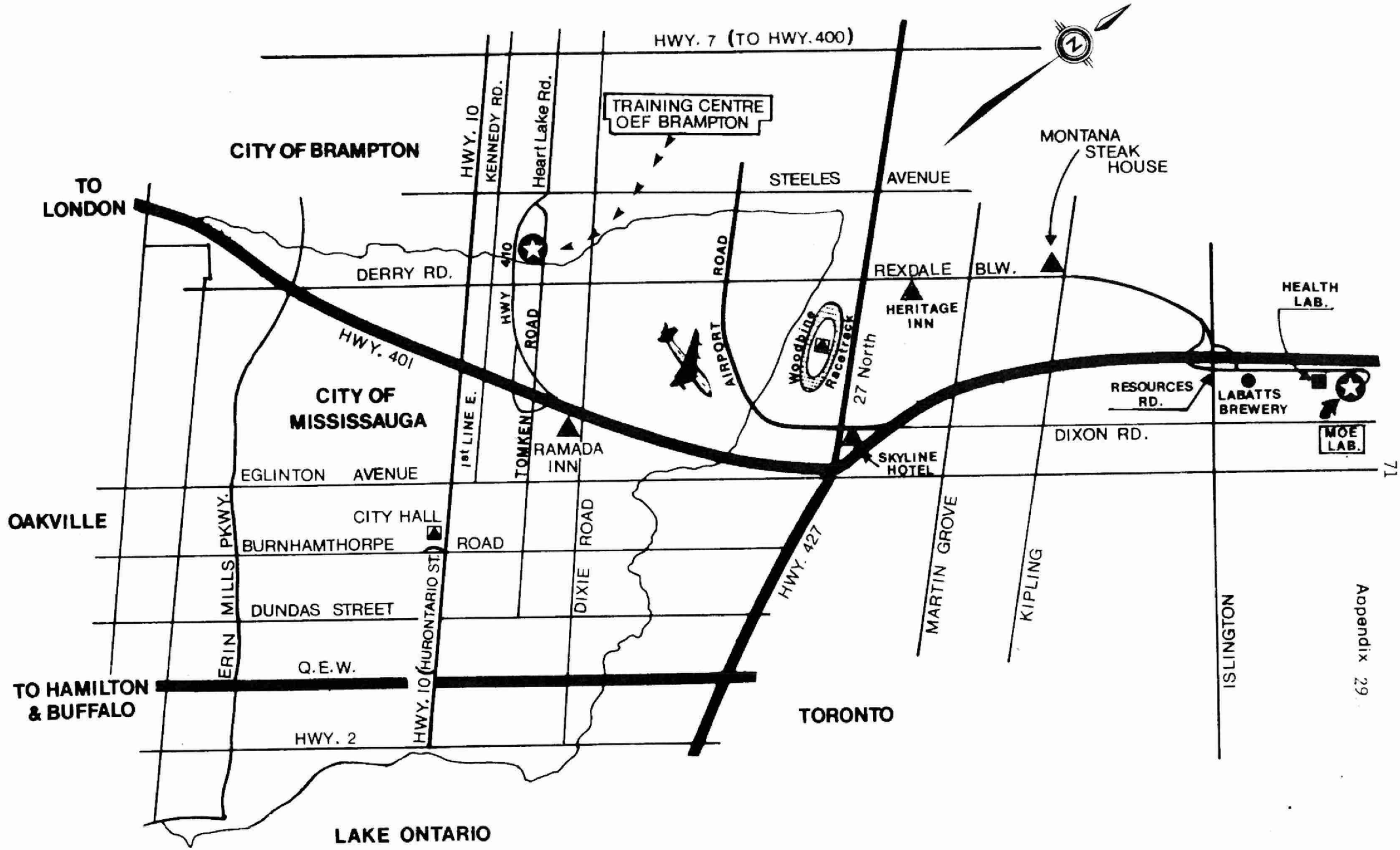
Program	(Capacity)	Dates		Location	Remarks
Sewer & Watermain Design	(40)	Oct. 12 - 16	1981	Staff Development Centre - Barrie, Ontario	
Sewer & Watermain Construction Inspectors' No. 1	(40)	Dec. 7 - 11	1981	MOE Laboratories	
Sewer & Watermain Construction Inspectors' No. 2	(40)	Mar. 15 - 19	1982	MOE Laboratories	
Industrial Air Abatement I	(30)	Oct. 19 - 23	1981	MOE Laboratories	
Industrial Air Abatement II	(30)	Jan. 25 - 29	1982		
Industrial Air Abatement III	(30)	Apr. 19 - 23	1982		
Visible Emissions		Jul. 17 - 23	1982	Brampton OEF	
Control of Liquid Industrial Waste	(40)	May 31 - Jun 4	1982	MOE Laboratories	
Waste Disposal by Landfilling	(25)	To be determined		Regional Locations	
Groundwater for Env. Officers		Sep. 28 - Oct. 2	1981	Regional Locations	MOE only
	(25)	Jan. 18 - 22	1982	Regional Locations	MOE only
		May 10 - 14	1982	Regional Locations	MOE only
Emergency Response		Sep. 21 - 25	1981	Regional Locations	
	(35)	Nov. 16 - 20	1981		
		Jan. 11 - 15	1982		
		Feb. 22 - 26	1982		
		May 3 - 7	1982		

Program Schedule 1981/82

Program	(Capacity)	Dates	Location	Remarks
Environmental Investigations	(24)	To be determined	Ontario Police College	MOE only
Aids to Investigators	(24)	Mar. 29 - Apr. 2 1982	MOE Laboratories	MOE only

TRAINING AND CERTIFICATION SECTION
CALENDAR 1981/82

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TRAINING CENTRE OEF BRAMPTON
CITY OF BRAMPTON
HWY. 10
KENNEDY RD.
Heart Lake Rd.
STEELES AVENUE
MONTANA STEAK HOUSE
TO LONDON
DERRY RD.
HWY 410
AIRPORT ROAD
REXDALE BLW.
HERITAGE INN
HEALTH LAB.
HWY. 401
CITY OF MISSISSAUGA
Woodbine Racetrack
27 North
RESOURCES RD.
LABATTS BREWERY
MOE LAB.
1st LINE E.
TOMKEN ROAD
RAMADA INN
DIXON RD.
SKYLINE HOTEL
EGLINTON AVENUE
OAKVILLE
CITY HALL
BURNHAMTHORPE ROAD
ERIN MILLS PKWY.
HWY. 10 (HURONTARIO ST.)
DIXIE ROAD
HWY. 427
MARTIN GROVE
KIPLING
ISLINGTON
DUNDAS STREET
Q.E.W.
TO HAMILTON & BUFFALO
TORONTO
HWY. 2
LAKE ONTARIO

Appendix 29

Appendix 30

Accomodation

Hotel	Telephone No.	Single Rate	Double Rate	Twin Rate
Bristol Place 950 Dixon Road	675-9444	$60.00	$60.00	
Cambridge Motor Hotel Dixon Road & Highway 401	249-7671	$38.00	$44.00	
Cara Inn 6257 Airport Road	678-1400	$41.00	$51.00	
Constellation Hotel 900 Dixon Road	675-1500	$47.00	$57.00	
Heritage Inn 385 Rexdale Blvd.	742-5510	$32.00	$39.00	
Holiday Inn-Airport 970 Dixon Road	675-7611	$49.50	$60.00	$62.00
Howard Johnson's Airport Hotel 801 Dixon Rd.	675-6100	$49.00	$59.00	
Ramada Inn 544 Dixie Road Mississauga, Ontario	624-1144	$45.50	$52.50	
Skyline Hotel 655 Dixon Road	244-1711	$48.00	$46.00	

The above government rates were provided by the management of each hotel and are subject to change with time. When requesting reservations, the actual government rate should be confirmed.

To qualify for the above room rates, please inform the hotel registration clerk that you are attending a Ministry of the Environment course.

96936000008077

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